

CHAPTER 238 EVALUATE AIRBORNE MICROWAVE LANDING SYSTEMS

Section 1 Background

1. PTRS ACTIVITY CODES

- Avionics: 5434

3. OBJECTIVE. This chapter provides guidance for evaluating airborne microwave landing systems for approval.

5. GENERAL

A. The present generation of VHF/UHF/ILS is precluded from widespread use due to congestion, siting, fiscal, and other industry problems. The need for a system to satisfactorily replace the VHF/ILS has prompted industry to develop a number of wide angle, scanning microwave landing systems. These systems have been approved for some operators as a landing aid during IFR conditions.

B. Tactical Landing Approach Radar (TALAR) is an early microwave landing system used by some air carriers. Recently, the International Civil Aviation Organization

(ICAO) selected the Time Reference Scanning Beam (TRSB) Microwave Landing System as the standard precision landing system to replace the ILS, and has adopted a plan for transition to this system.

C. A particular advantage of a microwave landing system is that it will increase the number of Cat II/III airports and expand the horizontal approach angles available.

7. APPROVALS. The installation and operational approval of airborne microwave landing systems require extensive evaluation and flight testing. Therefore, approval of such systems must be defined through Type Certificate (TC) or Supplemental Type Certificate (STC).

9. MAINTENANCE PROGRAM REQUIREMENTS. The operator must provide a complete maintenance program acceptable to the assigned Principal Avionics Inspector. The program must include inspection and maintenance schedules appropriate to any lower landing minimum from which the application was derived. (See Vol. 2, Ch. 3, Evaluate Category I/II/III/IIIA Landing Minimum Maintenance/Inspection Programs.)

Section 2 Procedures

1. PREREQUISITES AND COORDINATION REQUIREMENTS

A. Prerequisites

- Knowledge of the regulatory requirements of FAR Parts 91, 121, 125, 129, and 135, as applicable
- Successful completion of Airworthiness Inspector's Indoctrination Course for General Aviation and Air Carrier Inspections, or previous equivalent

B. *Coordination.* This task may require coordination

with FAA Engineering and will require coordination with the air carrier's Principal Operations Inspector.

3. REFERENCES, FORMS, AND JOB AIDS

A. References

- FAR Part 171
- Order 8300.10, Airworthiness Inspector's Handbook, Vol. 2, Ch. 3, Evaluate Category I/II/III/IIIA Landing Minimum Maintenance/Inspection Programs

B. *Forms.* None.

C. *Job Aids.* None.

5. PROCEDURES

A. *Initiate the Approval Process*

(1) Determine aircraft acceptability.

(a) Coordinate with the operations inspector and the Aircraft Certifying Office of the Aircraft Type Certificate, if applicable.

(b) Review the operator submitted supporting approval data, if available.

(2) Accomplish the following, as applicable:

(a) If the operator applies for an original Supplemental Type Certificate, arrange for the operator to coordinate with FAA Engineering for the approval

(b) If the operator selects a microwave landing system with a Supplemental Type Certificate that has been approved for the operator's type of aircraft, ensure that the system is installed in compliance with the Supplemental Type Certificate

(c) If the operator selects a microwave landing system that is an approved option for the applicable aircraft, ensure the operator complies with the manufacturer's installation instructions

B. *Review the Maintenance/Inspection Program (FAR Part 91).* Review the applicant's maintenance/inspection program to ensure that it contains control and accountability of the following:

(1) All maintenance accomplished on lower minimum required systems and equipment

(2) All alterations to systems and equipment

(3) The continuous approach status of each aircraft

(4) The evaluations of self test, maintenance cali-

bration, use of test equipment, and records/reporting requirements

(5) Repetitive and chronic discrepancies, to ensure that the affected aircraft remains out of lower minimums approach status until positive corrective actions are taken

C. *Review the Existing Maintenance/Inspection Programs (FAR Parts 121, 125, and 135)*

(1) Ensure that the existing maintenance/inspection program has procedures for the following:

(a) Performing initial evaluation checks on existing aircraft and for new aircraft added to the fleet prior to authorizing microwave operation

(b) Identifying all components used in the microwave landing system for use in the control of the existing parts pool and parts borrowing procedure

(c) Ensuring that calibration standards for all test equipment used for maintaining microwave landing systems and equipment are met

(2) Ensure that the existing maintenance/inspection program contains control and accountability of the following:

(a) All maintenance accomplished on lower minimum required systems and equipment

(b) All alterations to systems and equipment

(c) The continuous approach status of each aircraft

(d) The evaluations of self test, maintenance calibration, use of test equipment, and records/reporting requirements

(e) Repetitive and chronic discrepancies, to ensure that the affected aircraft remains out of lower minimums approach status until positive corrective actions are taken

D. *Review the Minimum Equipment List (MEL).* Ensure that the appropriate sections of the MEL have been revised to identify microwave landing systems and special procedures, if applicable.

E. *Review Personnel Training Requirements.* Ensure that adequate procedures exist for the training of maintenance personnel.

7. TASK OUTCOMES

A. *File PTRS Transmittal Form*

B. Successful completion of this task will consist of coordinating the results of the evaluation and approval of the avionics requirements and associated support programs with the operations inspector.

NOTE: If the operator proposes Cat II/III landing minimums, ensure compliance with the procedures of Vol. 2, Ch. 3.

9. **FUTURE ACTIVITIES.** None.

